

FURUNO

OPERATOR'S MANUAL

MF/HF DSC RECEIVER

MODEL AA-50/50R

(ROM VERSION No.:1.11)



FURUNO ELECTRIC CO., LTD.
NISHINOMIYA, JAPAN

©FURUNO ELECTRIC CO., LTD.

9-52, Ashihara-cho,
Nishinomiya, Japan 662

Telephone: 0798-65-2111
Telefax: 0798-65-4200

-Your Local Agent/Dealer

All rights reserved. Printed in Japan

FIRST EDITION : MAY 1992
H : MAR. 11, 1997

(ETM1)

PUB. No. OME-55390

AA-50/50R



* 0 0 0 8 0 2 8 9 8 0 0 *



SAFETY INFORMATION FOR THE OPERATOR



WARNING



Do not open the cover of the equipment.

This equipment uses high voltage electricity which can shock, burn, or cause death. Only qualified personnel should work inside the equipment.

Do not disassemble or modify the equipment.

Fire, electrical shock or serious injury can result.

Immediately turn off the power at the ship's mains switchboard if water or foreign object falls into the equipment or the equipment is emitting smoke or fire.

Continued use of the equipment can cause fire, electrical shock or serious injury.



CAUTION

Do not place liquid-filled containers on the top of the equipment.

Fire or electrical shock can result if a liquid spills into the equipment.

Do not place heater near the equipment.

Heat can melt the power cord, which can result in fire or electrical shock.

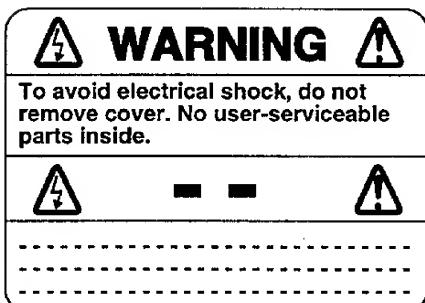
Do not operate the unit with wet hands.

Electrical shock can result.

Use the correct fuse.

Use of the wrong fuse can cause fire or equipment damage.

WARNING Label attached



Name : Warning Label (1)

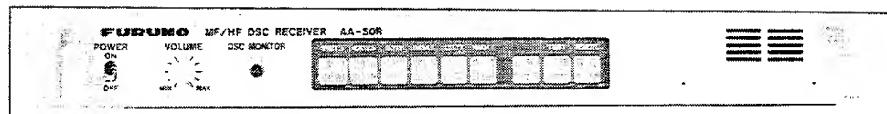
Type : 86-003-1011-0

Code No. : 100-236-230



T Photo No.1247

AA-50 MF/HF DSC RECEIVER



T Photo No.1244

AA-50R MF/HF DSC RECEIVER (Rack Mount)

Table of Contents

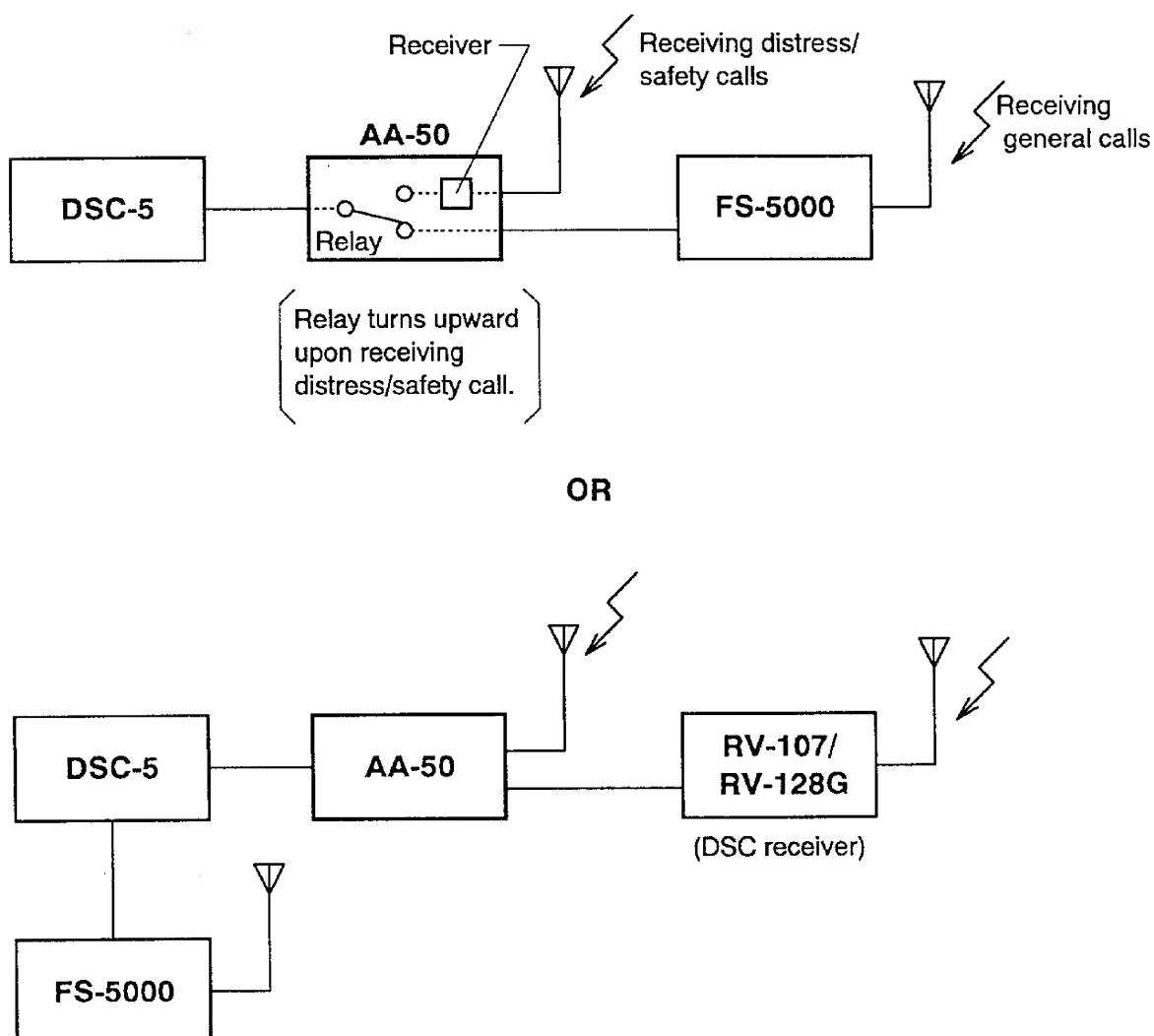
	<u>Page</u>
SAFETY INSTRUCTIONS	i
INTRODUCTION	1
1. OPERATION	2
1.1 Controls	2
1.2 Basic Operating Procedure	3
1.3 Receiving	4
2. MAINTENANCE	5
2.1 Regular Checks	5
2.2 Self Test	5
3. TROUBLESHOOTING (For qualified person)	6
3.1 Power Supply	6
3.2 Receiver	6
Specifications	AP1-1

INTRODUCTION

About the AA-50/50R

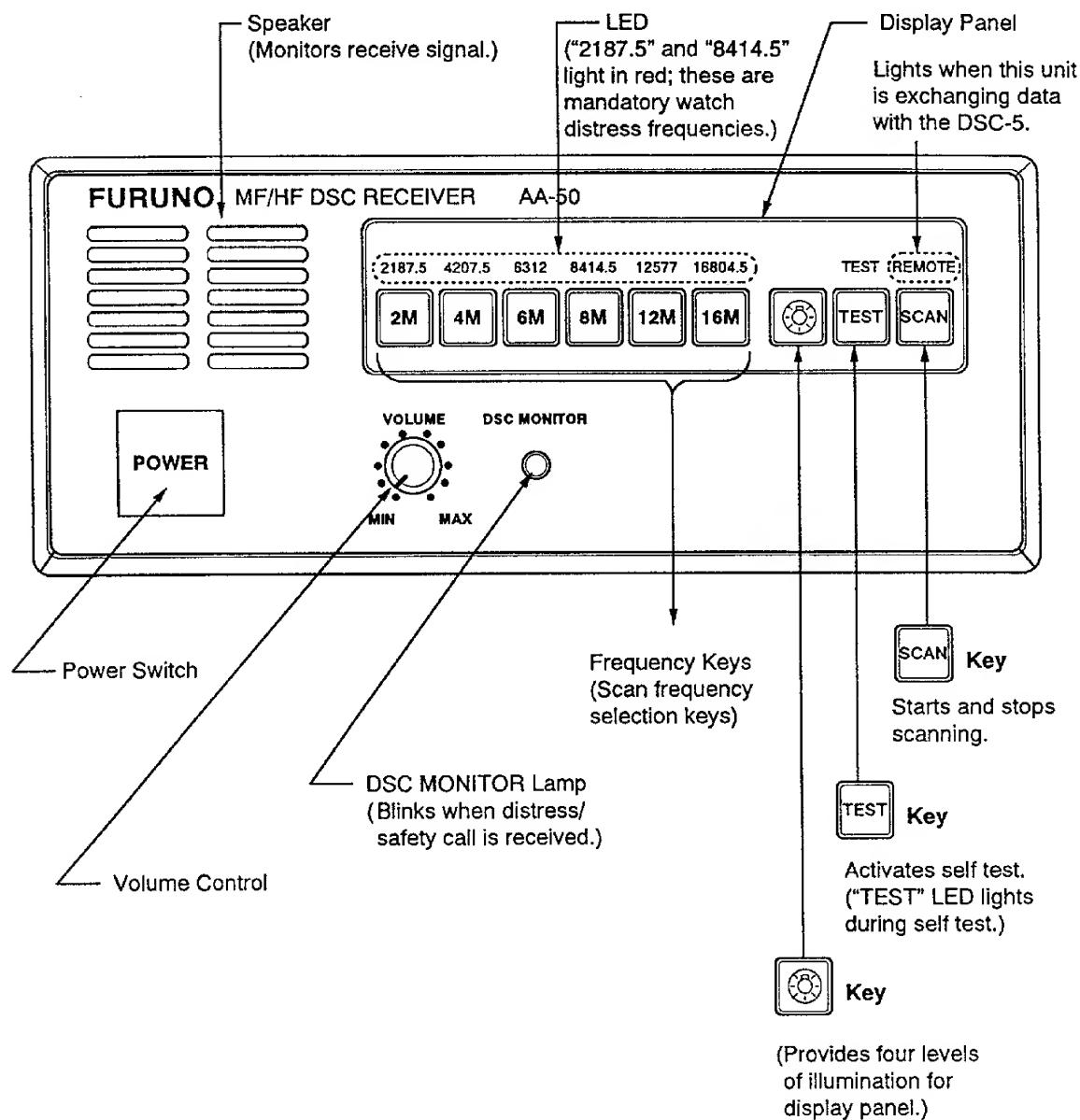
The FURUNO AA-50/50R MF/HF DSC Receivers receive DSC distress and safety frequencies (max. 6), and are mainly employed by vessels which operate in ocean areas A3 and A4. Example connections with various FURUNO communication equipment are shown in the figure below.

The AA-50 and AA-50R are operationally identical, but the AA-50R is designed for rack mounting and its power switch is a toggle switch rather than pushbutton.



1. OPERATION

1.1 Controls



1.2 Basic Operating Procedure

Procedure	Key Operation
1. Turn on the power.	Press the  switch. → All LEDs light momentarily and scanning starts automatically. (In the factory setting, all six DSC distress/safety frequencies are scanned.) (For AA-50R, flip the power switch upward.)
2. Adjust illumination of display panel.	Press the  key. → Four levels are available, in the following sequence. → HI → MED → LOW → OFF →
3. Deselect frequency(s) from scanning. (Max. 3)	(1) Press  key to stop scanning temporarily. → Currently selected frequency LED blinks. (2) Select frequency you want to deselect with frequency key. Note that both 2 MHz and 8 MHz cannot be deselected. Example : Deselect 4 MHz ↓ Press  key → "4207.5" LED goes off. (3) Press  key to restart scanning.
4. Select a scanning frequency.	(1) Press  to stop scanning. (2) Press a desired frequency key whose LED is off. (Example: 4 MHz → Press  key.) (3) Press  to restart scanning.
5. Adjust speaker volume.	Adjust the VOLUME control for comfortable listening level. Turning it fully counterclockwise mutes receive signal.
6. Turn off the power.	Press and hold down the  switch about two seconds then release it. (For AA-50R, flip the POWER switch downward.)

1.3 Receiving

When a distress/safety call comes in;

- the receive signal sounds through the speaker
- the DSC monitor lamp blinks
- receiving frequency LED lights
- “REMOTE” LED lights momentarily.

The receive signal is then sent to a DSC Terminal (DSC-5) for analysis. After the AA-50/50R completely receives the signal it restarts scanning.

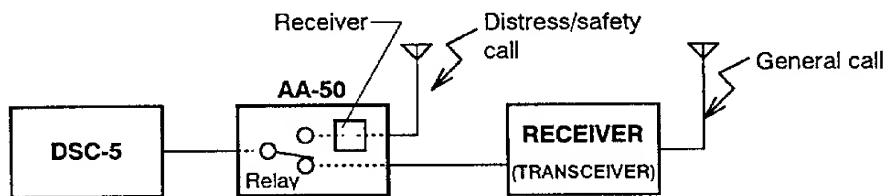
When own ship is in distress, the distress alert is transmitted by the DSC-5 or DMC-5. Then, the AA-50/50R deactivates receive function at the moment it receives the alert transmitted by own ship. (The “REMOTE” LED lights, indicating that the AA-50 is now controlled by the DSC-5.) This state continues about five minutes. To cancel it, turn the power off.

Reference : How the AA-50/50R Works

The AA-50/50R functions only to detect a receive signal which is prefixed with a “dot pattern” signal (200 bit H/L repetitive signal).



When it detects the dot pattern, an internal relay (shown below) turns upward to pass the signal to the DSC-5. Note that distress/safety calls take precedence over all other calls.



When the AA-50 receives:

- a distress alert from DSC-5 of own ship its keyboard locks and the “REMOTE” LED lights five minutes. (After five minutes, AA-50 resumes scanning.)
- a message other than distress (for example, safety) transmitted on a distress/safety frequency by DSC-5 its keyboard locks and the “REMOTE” LED lights one minute.
- a distress from another ship it watches on the received frequency three minutes to receive distress acknowledgement (DIST ACK) from a coast station.

2. MAINTENANCE

The AA-50 and AA-50R are designed to provide many years of trouble-free performance. However, no machine can perform its intended function unless properly maintained.

2.1 Regular Checks

Main Unit

The external surfaces of the main unit can be cleaned when necessary. The only recommended cleaning material is a soft cloth. Periodically check that all connectors on the rear panel and inside the main unit are firmly plugged in.

Antenna

Item	Checkpoint	Remedy
Whip antenna	1. Check for cracks. 2. Check for water leakage.	Replace if damaged.
Wire antenna	Check for damage.	Tape where necessary.
Preamp unit	Check for rust at junction between preamp unit and antenna.	Remove rust.

2.2 Self Test

This unit comes equipped with a self test facility which checks it for proper operation.

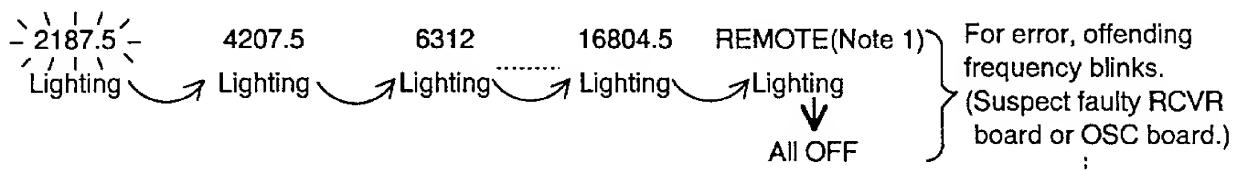
Procedure

1. Turn on the power. (Scanning starts.)
2. Press the **TEST** switch. ("TEST" LED lights.)

↓

If there is no problem the "frequency" LEDs light in order.

3. The self test stops automatically and scanning restarts.
("TEST" LED goes off.)



Note1: The "REMOTE" LED blinks when there is no exchange of data between the AA-50 and DSC-5. (Cause: DSC-5 turned off, Remote-E setting of DSC-5 set to other than "WR", or cable connecting AA-50 to DSC-5 is disconnected.) To restart scanning, press any key.

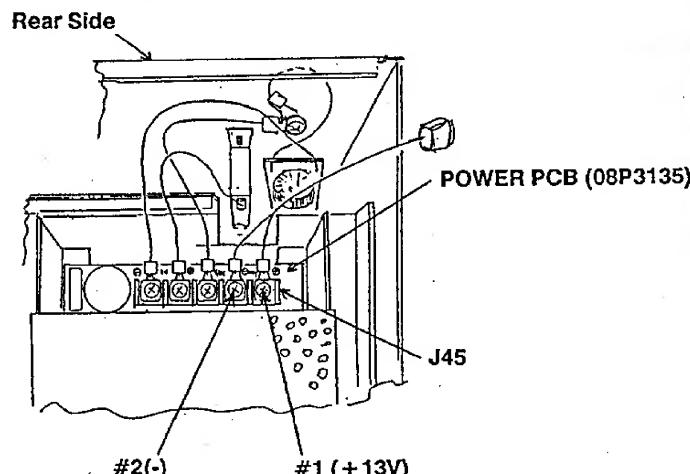
To restart scanning, press any key.

3. TROUBLESHOOTING

(For qualified person)

3.1 Power Supply

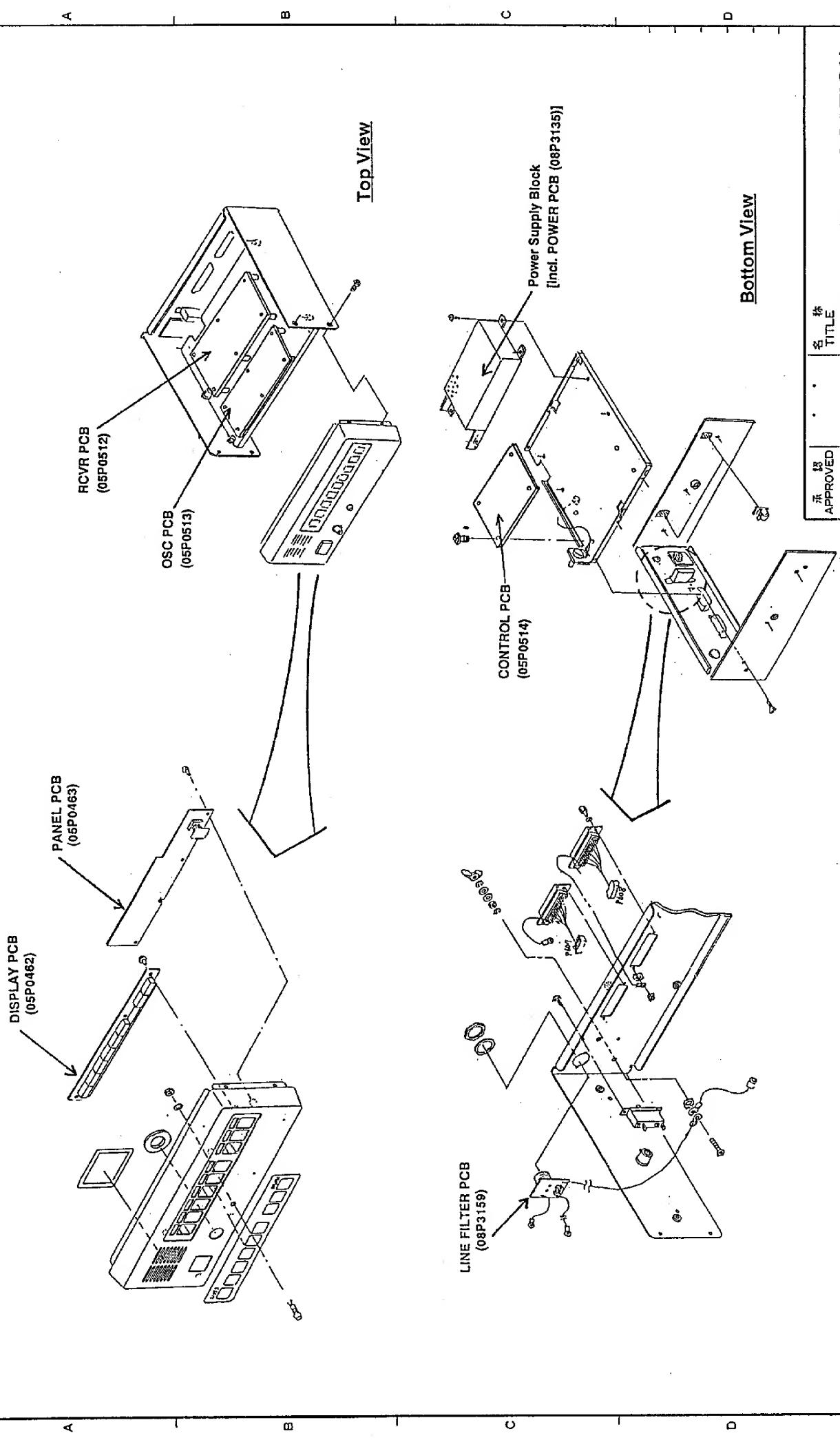
If you cannot turn on the power ...	Then check...	Remedy
	<ul style="list-style-type: none"> • breaker (2A) on rear panel. • power cable. • voltage (technicians only). 	<ul style="list-style-type: none"> • Push breaker in if it is protruding (off), to restore normal operation. • Check for damage and proper seating. Measure voltage at power connector. (Rating : 10-40 VDC) • Measuring point: J45#1 (+) – #2(–) on POWER board (08P3135).

AA-50 Bottom View with Cover Removed

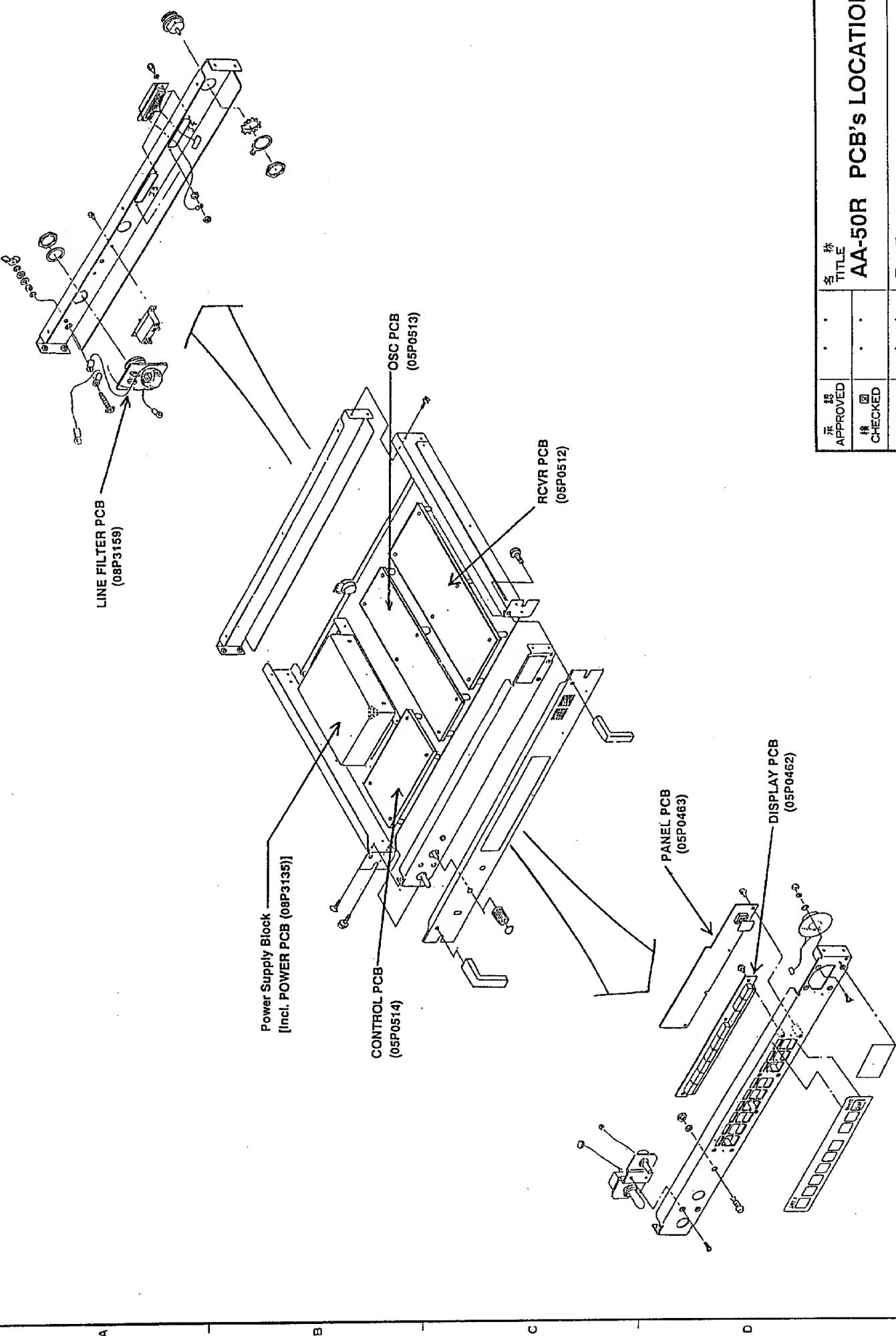
3.2 Receiver

You can check for receiving line fault by doing the self test; frequency LED blinks to identify defective receiving line.

Problem	Check
Cannot receive.	<ul style="list-style-type: none"> • Input filter on RCVR board (05P0512) • OSC board (05P0513)
Cannot scan correctly.	• CONTROL board (05P0514)



APPROVED	CHECKED	DRAWN	TITLE	DWG. NO.
			AA-50 PCB's LOCATION	



SPECIFICATIONS OF AA-50 MF/HF DSC RECEIVER

1. Receiving System	PLL synthesized, single-conversion superheterodyne
2. Receiving Frequency	2187.5 / 8414.5 kHz and 4207.5, 6312, 12577, 16804.5 kHz
3. Class of Emission	F1B, J2B
4. Frequency Stability	within $\pm 10\text{Hz}$
5. Warm-up Time	1 minute
6. Sensitivity	Error rate : less than 1/100 for $1\mu\text{V}$ input
7. Selectivity	-6dB : 270 to 300Hz -30dB : within $\pm 380\text{Hz}$ -60dB : within $\pm 550\text{Hz}$
8. Line Output	-10dBm to +10dBm (600 ohms, balanced)
9. Audio Output	1W (8 ohms, unbalanced)
10. Environmental Conditions	
Ambient Temperature	-15°C to +55°C
Relative Humidity	93% (at +40°C)
11. Power Requirement	10 to 40VDC, 15W, or 100/110/115/220/230VAC, 1φ, 50/60Hz by external rectifier
12. Standard Coating Color	Panel : Munsell N3.0 (not changed) Cover : Munsell 2.5GY5/1.5

SPECIFICATIONS OF AA-50R MF/HF DSC RECEIVER

1. Receiving System	PLL synthesized, single-conversion superheterodyne
2. Receiving Frequency	2187.5 / 8414.5 kHz and 4207.5, 6312, 12577, 16804.5 kHz
3. Class of Emission	F1B, J2B
4. Frequency Stability	within $\pm 10\text{Hz}$
5. Warm-up Time	1 minute
6. Sensitivity	Error rate : less than 1/100 for $1\mu\text{V}$ input
7. Selectivity	-6dB : 270 to 300Hz -30dB : within $\pm 380\text{Hz}$ -60dB : within $\pm 550\text{Hz}$
8. Line Output	-10dBm to +10dBm (600 ohms, balanced)
9. Audio Output	1W (8 ohms, unbalanced)
10. Environmental Conditions	
Ambient Temperature	-15°C to +55°C
Relative Humidity	93% (at +40°C)
11. Power Requirement	10 to 40VDC, 15W

5-2B 14

FURUNOREVISION RECORD OF OPERATOR'S/INSTALLATION MANUALMODEL: AA-50/50R PUBLICATION NO.: OM-E5539

REV. NO.	DATE	REVISED PAGE	DETAILS	PERSON IN CHG.
A		—	First Edition —	
B	1992-7 (Ver.11)	i 3 5 6 19 S-2 S-7 S-8	Minor RV-128 → RV-128G "Description how to turn off the power" changed. "Description of AA-50 key lock" added. RV-128 → RV-128G INTERCONNECTION DIAGRAM RECEIVER PCB SCHEMATIC DIAGRAM LOCAL OSC PCB SCHEMATIC DIAGRAM	T.SAITO
C	May, '93	12	Compass Safety Distance changed.	T.SAITO
F	Jan, '95	18		T.NISHINO
		API-5	minor	
		D-4	C6244-003-G-H	
		D-2		
		D-3		
		S-2	Reduced to A4 size	
		S-3		
		S-4		
		S-5		
		S-6		
		S-7	C5539-K04-B 7	
		S-8	C5539-K05-B } deleted	
		S-9	C5539-K03-A }	
		S-10	C6246-019-J }	
G	Mar. '96		ル-3番号変更のため 全面改訂	E.MIYOSHI
		D-5	C4002-018-D → E	
H	1997.3	ル-3"	OM-E5539/173	三田